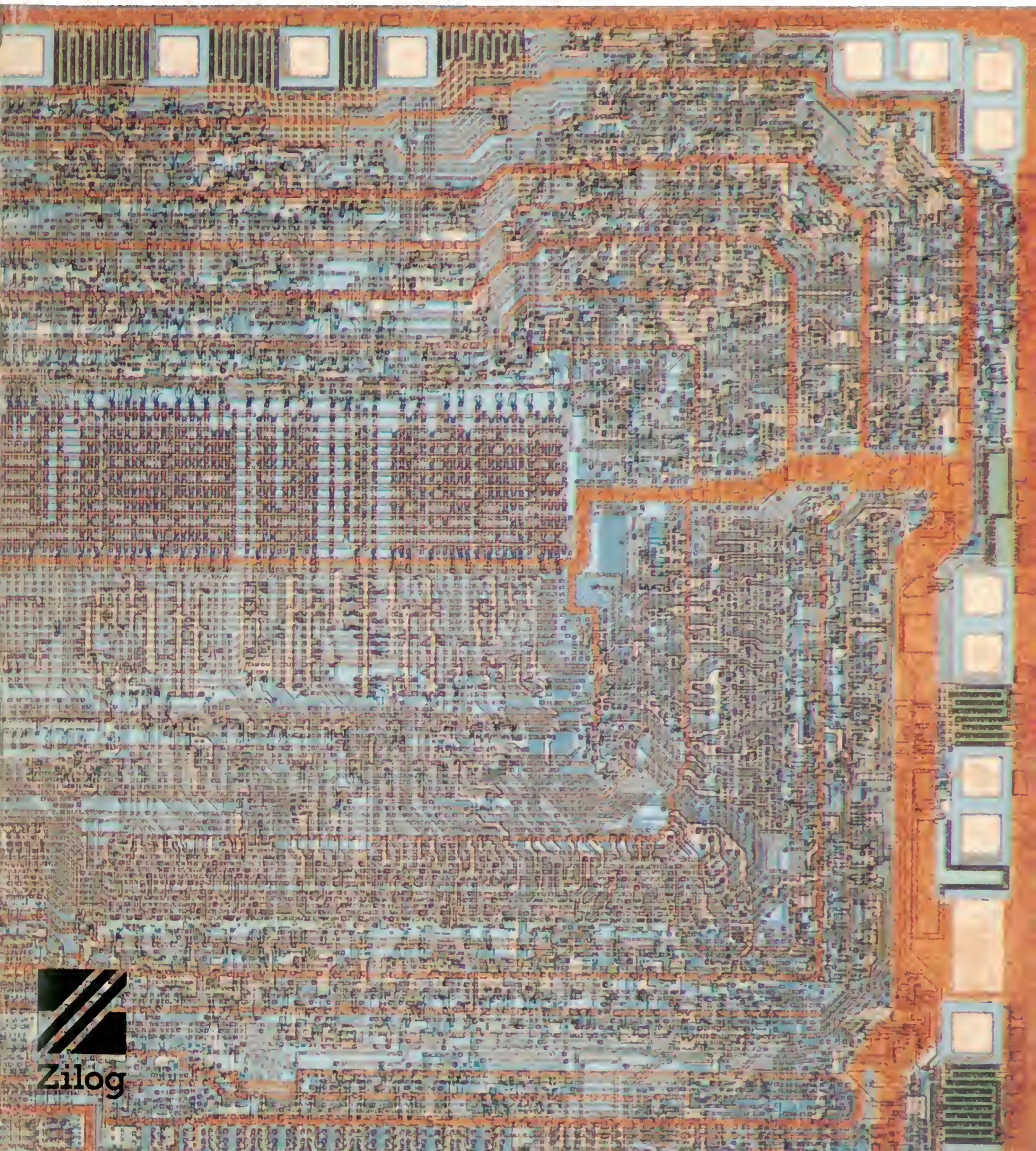
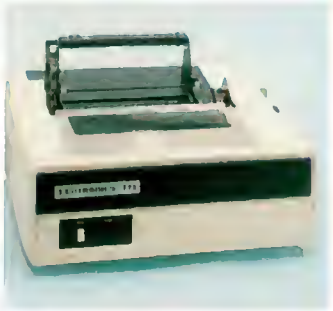
Tandy TC COMPUTERS

1978 CATALOG



Microcomputers — The Beginning of a New Era

Low-cost computing has come of age. A basic system — consisting of a Central Processing Unit, a Memory Unit, a keyboard input, and a printer or video output — is able to perform a variety of operations.



Large firms have long profited from computerizing their operations, but the only computers available have required huge outlays of cash. The microcomputer is an inexpensive solution for businesses that have wanted to computerize certain operations but couldn't, until now, afford to.

Computers bring with them a new management science that any businessman can appreciate. Computerized profit and loss statements presented on a *daily* basis alone could change "guesswork" into productive decision-making. And because it can handle complex work like statistics, trend analysis and even simulations, a microcomputer is a fantastic time-saving aid to strategic planning.

Even if its full capabilities are never used, a microcomputer can become an important addition to any business. Small businesses especially, that use the computer for bookkeeping and general accounting functions such as accounts receivable and payroll, can use the time saved by the computer for more important matters.

Of course, you don't have to be a businessman to appreciate a microcomputer. Whatever your interest in computers is, remember that computers have already helped shape our society. Your ideas and applications may develop into a whole new standard of living!

Computer Terms You May Want to Learn

Bus Structure — The type of common connection among a number of locations over which information is transferred.

Central Processing Unit (CPU) — The principal unit of the computer which controls the processing and maintains a quickly accessible memory.

Input/Output (I/O) — The transmission of data from an external source (I/O device) to the computer or from the computer to an external device.

Instruction Set — The group of different instructions that a particular CPU is designed to execute. The more instructions, the greater the power of the processor.

Interrupt — A signal that forces the computer to divert from the main program to a specific address which is directly related to the type of interrupt that has taken place.

Memory — An electronic storage medium (the terms "memory" and "storage" are interchangeable), used mainly for retrieving information and data.

- **Internal Memory** — A storage device that is an integral part of a computer and which is automatically accessible without human intervention.
- **External Memory** — Off-line storage device that is not an integral part of the computer, such as magnetic-tape or disk devices.
- **Random Access Memory (RAM)** — The segment of the computer's internal memory where programs or data can be stored. The contents of the memory may be changed to another program or another set of data at any time. When power is shut off, memory content is lost.
- **Read-Only Memory (ROM)** — A permanent storage segment that retains memory content whether power is on or off. Like RAM, it can be read from but not altered or written into.
- **Programmable Read-Only Memory (PROM)** — Similar to ROM except that its memory can be programmed, one time only, by the user.
- **Erasable Programmable ROM (EPROM)** — A ROM that can be programmed by the user, erased and reprogrammed with new information. In normal use, it acts just the same as ROM — it cannot be written into.

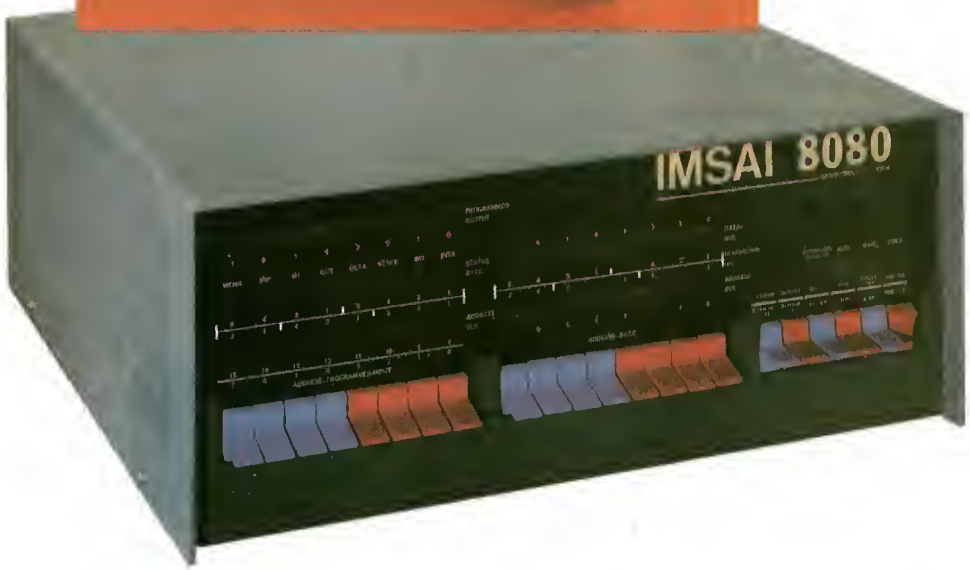
Peripherals — Any machine that is used with the computer but is not part of the computer itself, such as discs, printers and terminals.

Processor Speed (Cycle Time) — The actual computational time necessary to process a set of instructions in the arithmetic and logic units of the computer.

Register — A circuit designed to temporarily store one or more words to facilitate arithmetical, logical or transferral operations.

Kit or Assembled IMSAI Keeps an Eye on the Future!

Modular design, large card-cage and heavy-duty power supply make your expansion ideas come alive.



IMSAI 8080. The power you need for today's applications plus the flexibility you want for future expansion! And with the included 22-slot card cage, S-100 bus and 28-ampere power supply, the IMSAI can grow into virtually any application.

Using the Intel 8080-A microprocessor, it offers a basic cycle time of ½ millionth of a second and makes up to 65K words (bytes) of memory directly accessible. Up to 256 Input/Output communication channels are directly accessible.

The front panel includes the switches, indicators and logic needed for manual operation. It features logic that drives the programmed output indicators, and reads the input byte from the high-order address switches. DATA BUS indicators show data either read or written by the processor.

The back panel accommodates ten EIA-type 25-pin connectors. Opening and cable clamp furnished for flat cables to exit from cabinet.

Learn to operate your computer with the included IMSAI 8080 System User's Manual, Intel 8080 Microprocessor System User's Manual, and An Introduction to Microcomputers.

Software provided includes monitor, assembler, editor, loader and debugger (punched paper tape and source listings).

The IMSAI 8080 comes complete with Mother Board with 22 board slots, two 100-pin edge connectors with card edge guides and dust cover.
81-1301. Kit Form. 39 lbs. **699.00**
81-6301. Factory Assembled. 39 lbs. **931.00**

Specifications

Memory: 65,536 words, directly addressable. **Register Instruction Cycle Time:** 2μs. **Basic Machine Cycle Time:** 0.5μs. **Number of Input/Output Ports:** 256. **Machine Instruction Set:** 78 basic instructions, 174 including variants. **Nested Subroutine Calls:** Number limited only by memory size. **Interrupts:** 8 hardware levels (optional). **Registers:** 6 plus stack pointer, program counter, accumulator and status register. **Board Capacity:** 22 max. **Power:** 120VAC, 50-60 Hz, single-phase, 28 amperes. **Size:** 7x19½x17".

Save! Buy a Complete System Featuring The IMSAI 8080

Beginner's System

SAVE 255.85 Reg. Separate Items 2050.85 **1795.00**

- IMSAI 8080 Assembled Microcomputer with 8K RAM (81-6301)
- IKB-1 Intelligent Keyboard (87-2200)
- Koyo 9" Monitor (87-602)
- Realistic CTR-41 Cassette Recorder (14-841)
- Software and All Necessary Interfaces

System Shpg. Wt. 53 lbs. **1795.00**

Standard System

SAVE 200.95 Reg. Separate Items 2799.95 **2599.00**

- IMSAI 8080 Assembled Microcomputer with 16K RAM (81-6301)
- Lear Siegler Terminal (87-5301)
- 3M3 Digital Cassette System (83-1001)
- Software and All Necessary Interfaces

System Shpg. Wt. 74 lbs. **2599.00**

Business System

SAVE 279.95 Reg. Separate Items 5274.95 **4995.00**

- IMSAI 8080 Assembled Microcomputer with 32K RAM (81-6301)
- Soroc Terminal (87-202)
- Dual Floppy Disk System (84-5801)
- Software and All Necessary Interfaces

System Shpg. Wt. 110 lbs. **4995.00**

Build a VECTOR-1 Computer or Buy It Assembled

VECTOR 1. A microcomputer ready to be the workhorse of your system. Space is provided for 18 additional boards using the S-100 bus. Ample power is supplied by the heavy duty 18-ampere power supply.

The 8080A-based CPU board contains the master timing circuit, eight input and eight output data lines to the bus and control circuits and interrupt circuitry. Features 8-level vectored priority interrupts with a current status register to control the interrupt threshold and real time clock which can be used with the interrupt circuitry to generate timing synchronized with 60Hz. Cycle time is 2μs.

The PROM/RAM board has 1K of RAM and space for 2K of 1702A-type EPROM and a jump-on-reset feature — hit reset and go to any location in memory determined by the first command on the PROM. A powerful 512-byte Monitor capable of 9 commands is programmed on two 1702A PROMS: A, ASCII memory dump; D, HEX memory dump; G, Go to and execute program; L, Load program from Tarbell tape cassette interface and execute; P, Program memory from terminal; R, Read Tarbell cassette; T, Test any block of memory, using a pseudorandom number sequence; V, Verify cassette tape; W, Write Tarbell cassette.

Includes front panel power and reset switches, six edge-connectors and card guides, heavy-gauge cabinet and full instructions. Software includes system monitor in ROM. 7x17x17". For 120VAC, 60Hz. A 220VAC model is available on Special Order.

81-1305. Kit Form. Shpg. wt. 38 lbs. **619.00**

81-6305. Factory Assembled. Shpg. wt. 38 lbs. **819.00**

Save 134.80

Reg. Separate Items 2529.80 **2395.00**

- **Vector-1 Assembled Microcomputer with 16K RAM (81-6305)**
- **Informer Terminal (87-203)**
- **3M3 Digital Data Recorder (83-1001)**
- **Software and All Necessary Interfaces**

System shpg. wt. 51 lbs. **2395.00**

The "1+" Featuring Built-In Floppy Disk Option

Shown with optional disk drive installed

VECTOR-1+. All of the features of the Vector-1, above, *plus* provisions for a built-in floppy disk-drive unit! Having the disk drive built-in is both convenient and space-saving. And the computer can load diskette as soon as the power is turned on, eliminating tedious loading of bootstraps with front panel switches.

The "1+" features a power supply arrangement and front panel cutout to accommodate a Shugart SA-400 minifloppy or exact size equivalents from other manufacturers. A +12V, +5V regulator board is provided to operate the disk drive directly from the main supply.

A mechanically rigid, heavy .093" gauge cabinet retains its structural integrity even with the cover removed. The power supply components transfer their heat directly to the case bottom for cool operation. A line filter is provided to prevent transients on the power line from causing memory errors.

By providing a system monitor program on PROM, several advantages are achieved: Wiring cables and unreliable front panel circuitry are eliminated allowing the 8080A MPU to operate as it was intended.

Software includes the system monitor in ROM. With full instructions. 7x17x17".

81-1306. Kit Form. Shpg. wt. 38 lbs. **659.00**

81-6306. Factory Assembled. Shpg. wt. 38 lbs. **859.00**

Save 188.85

Reg. Separate Items 2983.85 **2795.00**

- **Vector-1+ Assembled Microcomputer with 16K RAM (81-6306)**
- **North Star Disk Drive (84-1702)**
- **Lear Siegler Terminal (87-301)**
- **Software and All Necessary Interfaces**

System shpg. wt. 56 lbs. **2795.00**

Save! Buy a Complete System Featuring the VECTOR-1+ and Floppy Disk Drive

Save 278.20

Reg. Separate Items 3473.20 **3195.00**

- **Vector-1+ Assembled Microcomputer with 32K RAM (81-6306)**
- **North Star Disk Drive (84-1702)**
- **Soroc Terminal (87-202)**
- **Software and All Necessary Interfaces**

System shpg. wt. 58 lbs. **3195.00**

Buy Now, Pay Later – Use Your Master Charge, Visa or American Express Card

A Computer Worthy of the Term "Sophisticated"

- ***Extra-Fast Z80 Microprocessor***
- ***Complete with ROM Monitor and I/O Board***
- ***Buy It Fully Assembled or in Kit Form***

XITAN alpha-2. The high-powered "extras" are already built-in! The alpha-2 provides you with 2K of RAM, 2K of ROM, 2 serial I/O ports, a parallel I/O port and a 1200-baud audio cassette interface that utilizes an asynchronous phase-encoding technique.

The CPU board is based on the Z80—one of the most powerful microprocessors to date. It features 158 instructions, 696 op-codes, 22 registers, single-voltage power requirements and static operation allowing clock speeds from DC up to 4MHz or greater. Two clocks are maintained, one variable for fine-tuning your system and one set for accessory cards requiring a 2MHz signal. Interrupts, in 3 modes, are up to 6 times faster than the 8080 MPU.

The system monitor board fully integrates the functions of 4 basic boards into a single module and maximizes the user's system executive control. Features 2K of high-speed, low-power RAM (350ns, static) for monitor extensions and/or program work space and 2K "zapple" monitor in masked-ROM that gives full system control and multiple breakpointing and debug capability.

The rear-panel power switch avoids accidental shut-off of power and isolates line noise from the system. Rear panel also accommodates ribbon cable slots and an AC fuse holder. Power supply output is also fused for system protection.

The software package includes 8K "zapple" basic, text output processor, "zapple" text editor and the relocating macro-assembler. The text output processor features automatic paging, concatenation and justification and other formatting functions. The text editor control may be effected by 24 alphanumeric commands which may be strung together in macro-like statements yielding superlative editing capability. The relocating macro-assembler is a sophisticated programming tool that generates a fully relocatable object code, has complete macro generation and allows infinite nesting of macros.

Eight-slot mother board allows for expansion up to a full 64K system with disk, line printer, etc. The rugged card cage is enclosed in a .092" gauge aluminum cabinet. The front panel has a reset switch and LED power indicator.

Operates on either 110-120VAC or 220-240VAC. With full instructions. 7x12x12½".
81-1304. Kit Form. Shpg. wt. 25 lbs. **868.00**
81-6304. Factory Assembled. Shpg. wt. 25 lbs. **1138.00**

Buy the "alpha" at a Low System Price and Save!

Save 187.85 Reg. Separate Items 2482.85 **2295.00**

- **XITAN alpha Assembled Microcomputer (81-6304)**
- **Two 8K RAM Boards (82-801)**
- **Lear Siegler Terminal (87-301)**
- **Realistic CTR-41 Cassette Recorder (14-841)**
- **Includes Software and All Necessary Interfaces**

System shpg. wt. 62 lbs. **2295.00**

Save 282.70 Reg. Separate Items 7777.70 **7495.00**

- **XITAN alpha Assembled Microcomputer (81-6304)**
- **Four 8K RAM Boards (82-801)**
- **Soroc Terminal (87-202)**
- **ICOM Disk Drive (84-805)**
- **Centronics 779 Printer (88-1002)**
- **Realistic CTR-41 Cassette Recorder (14-841)**
- **Includes Software and All Necessary Interfaces**

System shpg. wt. 152 lbs. **7495.00**